

## § 87.61

engine shall be used with all accessories which might reasonably be expected to influence emissions to the atmosphere installed and functioning, if not otherwise prohibited by § 87.62(a)(2). Use of service air bleed and shaft power extraction to power auxiliary gearbox-mounted components required to drive aircraft systems is not permitted.

(e) Other gaseous emissions measurement systems may be used if shown to yield equivalent results and if approved in advance by the Administrator or the Secretary.

[47 FR 58470, Dec. 30, 1982, as amended at 49 FR 31875, Aug. 9, 1984]

### § 87.61 Turbine fuel specifications.

For exhaust emission testing, fuel meeting the specifications listed below shall be used. Additives used for the purpose of smoke suppression (such as organometallic compounds) shall not be present.

#### *Property and Allowable Range of Values*

Specific gravity at 15 °C: 0.78–0.82.

Distillation temperature, °C: 10% boiling point, 160–201; final boiling point, 240–285.

Net heat of combustion, kJ/kg: 42,860–43,500.

Aromatics, volume %: 15–20.

Naphthalenes, volume %: 1.0–3.0.

Smoke point, mm: 20–28.

Hydrogen, mass %: 13.4–14.0.

Sulfur, mass %: less than 0.3%.

Kinematic viscosity at –20 °C, mm/s: 4.0–6.5.

[49 FR 41002, Oct. 18, 1984]

### § 87.62 Test procedure (propulsion engines).

(a)(1) The engine shall be tested in each of the following engine operating modes which simulate aircraft operation to determine its mass emission rates. The actual power setting, when corrected to standard day conditions, should correspond to the following percentages of rated output. Analytical correction for variations from reference day conditions and minor variations in actual power setting should be specified and/or approved by the Secretary:

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Mode	Class		
	TP	TF, T3, T8	TSS
Taxi/idle .....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Takeoff .....	100	100	100
Climbout .....	90	85	65
Descent .....	NA	NA	15
Approach .....	30	30	34

<sup>1</sup> See paragraph (a)(2) of this section.

(2) The taxi/idle operating modes shall be carried out at a power setting of 7% rated thrust unless the Secretary determines that the unique characteristics of an engine model undergoing certification testing at 7% would result in substantially different HC emissions than if the engine model were tested at the manufacturers recommended idle power setting. In such cases the Secretary shall specify an alternative test condition.

(3) The times in mode (TIM) shall be as specified below:

Mode	Class		
	TP	TF, T3 or T8	TSS
Taxi/idle (minutes) .....	26.0	26.0	26.0
Takeoff .....	0.5	0.7	1.2
Climbout .....	2.5	2.2	2.0
Descent .....	N/A	N/A	1.2
Approach .....	4.5	4.0	2.3

(b) Emissions testing shall be conducted on warmed-up engines which have achieved a steady operating temperature.

### § 87.63 [Reserved]

### § 87.64 Sampling and analytical procedures for measuring gaseous exhaust emissions.

The system and procedures for sampling and measurement of gaseous emissions shall be as specified by appendices 3 and 5 to ICAO Annex 16, Volume II, Aircraft Engine Emissions, First Edition, June 1981, which are incorporated herein by reference. This document can be obtained from the International Civil Aviation Organization, P.O. Box 400, Succursale: Place de L'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2 at \$3.00 per copy. It is also available for inspection